

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

The application is directed to a medical catheter. In one embodiment of the catheter, illustrated in FIG. 1, a proximal shaft 15 is connected to a distal shaft 13, a hub is connected to the proximal shaft 15, and a balloon 12 is connected to the distal shaft 13. A grooved portion 131 having a groove 132, see e.g., FIGS. 3 and 4, is formed in the front portion of the distal shaft 13 which is adjacent to the balloon 12.

Claim 1 stands rejected over Berg or Keith under 35 U.S.C. § 102(b). As best understood, the Official Action found that Berg anticipated Claim 1 based upon the catheter illustrated in FIG. 9 of Berg. According to Berg, this catheter assembly 50 includes a dilatation catheter 52 within a guide catheter 54. Claim 1 is directed to a catheter having a combination of features, including a balloon connected at a front portion of a distal shaft, with at least the front portion positioned on a rear side from the balloon and configured as a grooved portion having a groove. There is no disclosure in Berg of a balloon connected at a front portion of a distal shaft, wherein at least the front portion, positioned on the rear side from the balloon, is configured as a grooved portion having a groove. Rather, Berg discloses a guide catheter 54 that is separate from the dilatation catheter 52 (see e.g. FIGS. 4 and 5 which show the guide catheter as separate from the dilatation catheter). Hence, for example, the balloon part of Berg's dilatation catheter 52 in FIG. 9 is not connected to the shaft 60 having the transition zone 61. This is also true of the embodiment shown in FIG. 15 of Berg. Therefore, Berg does not anticipate a balloon connected at a front portion of a distal shaft and at least the front portion is configured as a grooved portion

having a groove. For at least this reason, Applicants request withdrawal of the rejection of Claim 1 based on Berg.

Claims 1 and 12 stand rejected over Keith. According to this reference, a catheter includes a kink-resistant structure 110 that is formed by a coil member 112 having spaced coils affixed to an intermediate sleeve section 24. The coil member is secured to this sleeve 24 using an adhesive. In addition, a heat shrinkable sheath 114 is shrunk down over the coil member 112 to further secure the coil member in place. See col. 9, lines 1-32. The Official Action found Claims 1 and 12 anticipated by Keith based in part on the view that Keith's coil member 112, adhesive and sheath 114 constitute a groove portion including a groove. As best understood, the Official Action has taken the position that the coil member 112 and sheath 114 resemble grooves, and so Keith can be interpreted as disclosing a portion of a shaft configured as a grooved portion having a groove.

In setting forth the rejection of Claim 1, the Official Action specifically refers to the catheter shown in Fig. 4 of Keith. FIG. 4 of Keith shows a steel ribbon 112A placed on the rear portion 36a, referred to as the proximal waist, of the balloon. Thus, FIG. 4 of Keith cannot be said to disclose that at least the front portion of a *distal shaft*, positioned on the rear side from the balloon, is configured as a grooved portion having a groove. Rather, as mentioned, Keith merely discloses a steel ribbon provided on the rear portion *of the balloon*.

It is noted that other versions of the catheter disclosed in Keith have a slightly different arrangement of features. In the FIG. 2 version, a coil member 112 is adhered to the outer surface of a sleeve 82, with a sheath 114 shrunk over the coil member 112. The coil member 112 creates an intermediate stiffener element

between the stiff main shaft section 22 (66) and the more flexible intermediate sleeve section 24 (82). It is respectfully submitted that the sleeve 82 to which is adhered the coil member 112 and covering sheath 114 cannot reasonably be interpreted as corresponding to the claimed front portion of the distal shaft configured as a grooved portion having a groove.

Several examples of groove portions having a groove are discussed in Applicants specification. For example, FIGS. 3 and 4 illustrate examples of a groove 132 formed in the distal shaft 13. Claims 1 and 12 recite that at least a portion of the distal shaft is configured as a grooved portion having a groove. Keith does not disclose that at least a portion of the distal shaft 82 is configured as a grooved portion having a groove. Rather, Keith merely discloses a coil member 112 adhered to the outer surface of the sleeve 82, with a sheath 114 shrunk over the coil member. This structure can hardly be considered a grooved portion of a shaft having a groove. The coil member 112 and covering sheath 114 are separate structure from the sleeve 82 and are thus not a groove.

Although not clear from the Official Action, it appears the rejection may be based on the assumption that when the sheath 114 is heat shrunk on the coil member 112, small valleys may form between adjacent turns of the covered coil member 112. However, there is no indication in Keith that this is necessarily or inherently the case. In addition, even if it would be established that small valleys might exist between adjacent turns of the coil member 112, such small valleys would not result in the sleeve 82 being configured as a grooved portion having a groove as claimed. For any of these reasons, Applicants respectfully request that the rejection of Claims 1 and 12 based on Keith be withdrawn and these claims allowed.

New Claims 25 and 26 are patentable over Keith and Berg for similar reasons as those discussed above. New Claims 25 and 26 both recite the grooved portion having the groove, and also set forth that the grooved portion is formed in the front portion of the distal shaft, which portion is located on a rear side from a connection portion between the distal shaft and the balloon. Neither Keith nor Berg describes a grooved portion formed in a shaft as claimed. For at least these reasons, Claims 25 and 26 are patentable over Berg and Keith.

Claims 25 and 26 are also patentable over the art of record because the art of record does not teach or suggest a catheter including a groove as claimed that has a depth in a range of 30 to 90% of the wall thickness of the distal shaft. This aspect of Claims 25 and 26 is also found in dependant Claim 15, which stands rejected as unpatentable under 35 U.S.C. § 103 in view of Keith. As best understood, the Official Action rejected Claim 15 based on the view that Keith discloses providing a smooth transition from the more rigid proximal portion to the more flexible distal portion, and so it would have been obvious to utilize a groove possessing a depth that is 30%-90% the wall thickness of the distal shaft. Applicants respectfully disagree.

As noted earlier, Keith does not disclose a groove portion having a groove formed in the front portion of a distal shaft. Keith provides the coil member 112 to create an intermediate stiffener element between the stiff main shaft section 22 and the more flexible intermediate sleeve section 24. If applicants are correct in assuming that the Examiner's position with respect to the claimed "groove portion having a groove" is that small valleys might exist between adjacent turns of the coil member 112 after the sheath 114 is heat shrunk on the coil member 112, there is

certainly no indication in Keith that the depth of such small valleys is important or even a concern in the context of the disclosed construction. There is no reason why one of ordinary skill, reading the disclosure in Keith, would have been motivated to choose a configuration for the coil member 112 and the sheath 114 so that the depth of the possibly existent small valleys between adjacent turns of the coil member 112 is between 30 and 90% of the wall thickness of the distal shaft. Keith merely seeks to provide the noted portion of the catheter with a coil member 112 and sheath 114 to create an intermediate stiffener element between the stiff main shaft section 22 and the more flexible intermediate sleeve section 24. There is no description in Keith indicating an interest in achieving a groove with a particular depth. For at least this reason, it is respectfully submitted that Claims 15, 25 and 26 are further distinguishable over the disclosure in Keith.

Claims 2-11, 13, 14, 16-23 depend from allowable Claims 1 and 12, respectively, and recite additional features that further distinguish over the art. As Claims 2-11, 13, 14, and 16-23 depend from allowable claims, it is not necessary to discuss the additional patentable features of these claims at this time. Allowance of Claims 2-11, 13, 14, and 16-23 is earnestly solicited.


Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful

in resolving any remaining issues pertaining to this application the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

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